

Amendments to the Specification:

Please replace paragraph [0052] with the following rewritten paragraph:

[0052] It may be arranged such that the circuit substrate is decelerated before being brought into contact with the stopper. For instance, in addition to the arrival detector, an approach detector may be employed to detect the circuit substrate coming close to the stopper so that the circuit substrate is decelerated upon detection of the circuit substrate approaching the stopper. Thus decelerating the circuit substrate lowers the undesirable impact of the circuit substrate being brought into contact with the stopper. For instance, in the case where electronic circuit components have been mounted on the circuit substrate but not fixed to the circuit substrate yet, displacement of the electronic circuit components from respective nominal positions caused upon ~~the circuit substrate is stopped, stop of the circuit substrate,~~ is avoided. The above mode (15) can be considered to be one example of the case where both the substrate detector and the stopper are employed by the working system described with respect to the mode (21) below. In this case, at least one of the arrival detector and the substrate detector corresponds to the substrate detector in the working system as described in the mode (21).

Please replace paragraph [0084] with the following rewritten paragraph:

[0084] The Y-axis slide 252 holds the component mounting head 230, a head lifting/lowering device 270 and a head rotating device 272, as shown in Figs. 6 and 7, and the component mounting head 230 with the other members constitute a component mounting unit 274. In the first embodiment, the X-axis slide 232, slide 236, Y-axis slide 252, X-axis slide moving device 246 and Y-axis slide moving device 264 constitute an XY robot 266 as a moving apparatus, which moves the component mounting head 230 to a desired location in the horizontal X-Y coordinate plane. It is noted that the component mounting unit 274 may consist of a plurality of such component mounting units.

Please replace paragraph [0093] with the following rewritten paragraph:

[0093] The electronic-circuit-component mounting system 11 is controlled by a controller 350 shown in Fig. 9, in which only a portion of the system 11 relevant to the invention is shown. The controller 350 is mainly constituted by a computer 352 in which a PU (Processing Unit) 354, ROM 356, RAM 358 and input/output port 360 are connected to one another via a bus line 362. To the input/output port 360 are connected various devices such as computers and detectors, e.g., an image processing computer 366 for analyzing image data captured by the fiducial-mark camera 294 and the component camera 336, the photoelectric sensors 310, 312 and encoders 368, 370. In the fiducial-mark imaging system 292 and the component imaging system 300, system 330, imaging and lighting operations are implemented under control of the controller 350.

Please replace paragraph [0104] with the following rewritten paragraph:

[0104] When the PWB 12 is carried onto the PWB conveyor 14 to be conveyed by the PWB conveyor 14, the XY robot 266 is controlled such that the first and second photoelectric sensors 310, 312 are moved to the predetermined detection locations where to detect the downstream-side edge of the PWB 12 so that the PWB 12 is stopped at the center position in the conveying direction, prior to that the PWB 12 reaches the stop position which is the central position in the conveying direction. Namely, the locations to which the X-axis and Y-axis slides 236, 252 should be respectively moved, which locations are predetermined depending upon the kind and conveying direction of the PWB 12 so that the photoelectric sensors 310, 312 are moved to the respective predetermined detection locations, are read from the RAM 358, and the X-axis and Y-axis moving motors 240, 256 are controlled based on the detection signals from the encoders 368, 370 so that the X-axis and Y-axis slides 236, 252 are moved to the predetermined locations, to move the photoelectric sensors 310, 312 to the respective predetermined detection locations. The light emitting element 314 of each sensor

310, 312 radiates a light which is to be detected by the light receiving-element 16, element 316, for thereby detecting the PWB 12. The XY robot 266 has a drive source in the form of a servomotor, and is constructed such that the component mounting head 230 is moved accurately to the predetermined location so that the electronic circuit components 16 can be mounted on the PWB 12 with high accuracy. Thus, the PWB detector 308 is accurately moved to the detection location, thereby improving accuracy of the control of stopping the PWB 12.

Please replace paragraph [0107] with the following rewritten paragraph:

[0107] In the case where the PWB 12 is conveyed leftward direction as seen in Fig. 11 (i.e. the direction as indicated by an arrow of chain double-dashed line), the photoelectric sensors 310, 312 are moved to the locations as indicated by chain double-dashed lines in Fig. 11, which locations are on the downstream side with respect to the central position in the conveying direction, and which are opposite, with respect to the center position of conveying directions, to the corresponding locations of the photoelectric sensors 310, 312 in the case where the PWB 12 is conveyed rightward. The second photoelectric sensor 312 is positioned on the upstream-side in the conveying direction with respect to the first photoelectric sensor 310 and functions as the deceleration sensor, while the second-first photoelectric-sensor 312 sensor 310 functions as the stop sensor, so that the conveyance of the PWB 12 is decelerated and then stopped.

Please replace paragraph [0110] with the following rewritten paragraph:

[0110] The PWB 12 having the cutout 386 is stopped such that a point on the PWB 12, which is the center of the PWB 12 in the conveying direction when assuming that the PWB does not have the cutout 386, is positioned at the center position in the range of movement of the component mounting head 230 in the conveying direction of the PWB conveyor 14. Hence, the location to which the X-axis slide 236 is to be moved is

predetermined such that where the PWB 12 is stopped in the state as described above, the PWB detector 308 is located at the position corresponding to the edge which has the cutout 386 and is perpendicular to the conveying direction, and that the photoelectric sensors 310, 312 detect the edge having the cutout 386 and corresponding to the downstream-side edge. The position to which the Y-axis-slide ~~256~~ slide 252 is to be moved is predetermined in the same way as in the case where the PWB 12 does not have the cutout 386.

Please replace paragraph [0125] with the following rewritten paragraph:

[0125] For instance, a case where a stop position of the PWB 12 is predetermined such that a downstream-side edge of the PWB 12 is located at a constant position irrespective of the type of the PWB 12 is considered here. In this case, when the stop position of the PWB 12 is predetermined on the basis of a large-sized PWB 12, if the PWB 12 in question has a small size, the PWB 12 is stopped in a marginal portion of the range of movement of the component mounting head 230, as indicated by a chain double-dashed line in Fig. 15. In such a case, a distance between the PWB 12 and the component imaging system 402 and accordingly a time required for the movement of the component mounting head 230 are adversely longer than in a case where the PWB 12 is stopped at the center position in the conveying direction, that is, at a position adjacent to the component imaging system 402 in the direction perpendicular to the conveying direction. On the other hand, according to the electronic-circuit-component mounting system ~~404~~ system 400 of the second embodiment, the PWB 12 is stopped such that the entirety of the PWB 12 is located adjacent to the component imaging system 402, irrespective of the type of the PWB 12. Hence, even in the case where the PWB 12 is small-sized, a distance of waste movement of the component mounting head 230 is reduced, shortening the total distance of the movement of the component mounting head 230, and thereby enhancing the efficiency of the mounting operation.

Please replace paragraph [0149] with the following rewritten paragraph:

[0149] For example, in the adhesive applying system 550, the stop position of the PWB 556 is determined depending upon the type of the PWB 556 and the conveying direction, and the determined stop position is stored in a PWB stop position data memory (not shown) in a RAM of the computer, with being associated with the type of the ~~PWB 12 PWB 556~~ and the conveying direction. For instance, the stop position of the PWB 556 is determined with respect to the center position of the PWB 556 in the direction parallel to the conveying direction, and may be varied depending upon the type of the PWB 556, such that the center position in the direction parallel to the conveying direction is differentiated depending upon the type of the PWB 556.

Please replace paragraph [0151] with the following rewritten paragraph:

[0151] In conveying the PWB 556, before the PWB 556 reaches the stop position, the PWB detector 640 is moved by the XY robot 568 to the predetermined detection location. When the first photoelectric-sensor ~~642~~ sensor 646 detects the downstream-side edge of the PWB 556, the PWB 556 is decelerated, and when the second photoelectric sensor 642 detects the downstream-side edge of the PWB 556, the PWB 556 is stopped. The arrangement where the stop position of the PWB 556 is differentiated depending upon the type of the PWB 556 is advantageous in that, for example, the lifetime of the XY robot 568 is prolonged since feed screws 576, 588 are fully utilized over their entire axial dimensions. It is noted that the PWB supporting device and PWB clamp device are disposed such that these devices can respectively support and clamp the PWB 556, irrespective of the position of the PWB 556 in the conveying direction. In other words, the stop position of the PWB 556 is determined within such a range that the PWB 556 can be supported by the PWB supporting device and can be clamped by the PWB clamp device.